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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/694,843	10/23/2000	Srikanth Nataraian	10004526-1	1015

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EXAMINER
EDELMAN, BRADLEY E

ART UNIT	PAPER NUMBER
2153	

DATE MAILED: 01/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/694,843	NATARAIAN ET AL.	
	Examiner	Art Unit	
	Bradley Edelman	2153	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 November 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9,13,14 and 16-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9,13,14 and 16-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 October 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

This is a first office action on the merits of this application. Claims 1-18 are presented for examination.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1. Claims 1-9, 13-14, and 16-18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In considering amended claims 1 and 14, the claims include the limitation of determining a shortest path "irrespective of a routing or layer 2 protocol being used by a connector," (claim 1), or "without regard to routing protocols or layer 2 protocols of connectors located along the path," (claim 14). Such functionality is not described or enabled in the specification as originally filed, and thus constitutes new matter. First, the limitation simply does not appear explicitly anywhere in the specification as originally filed. Second, the method for determining the shortest path described in the original specification *does* in fact depend on a routing or layer 2 protocol being used by a connector. Pages 13-14, and 16-17 both describe that the method for determining the

shortest path utilizes layer 3 (i.e. routing layer) gateways. These gateways inherently use both layer 2 and layer 3 protocols. Furthermore, these gateways are *defined* as layer 3 gateways, and thus are necessarily selected according to their use of the layer 3 protocol. Thus, the amendments to the claims teach away from applicant's invention as originally filed, and consequently constitute new matter.

Claims 2-8 and 16-18 depend from claims 1 and 14 respectively and are thus rejected for the same reasons.

In considering amended claim 9, the claim includes the limitation of "said shortest probable path being defined by a path with a lowest hop count between the start node and the end node and without reference to routing protocols of connectors located along the path." Such functionality is not described or enabled in the specification as originally filed, and thus constitutes new matter. First, the limitation does not appear explicitly anywhere in the specification as originally filed. Second, the method for determining hop count described in the specification *necessarily includes* communicating through layer 3 routers (i.e. "layer 3 gateway," see pp. 13-14, 16-17), and thus must refer to some layer 3 routing protocol to allow for such communication and to measure hop count. Thus, the amendments to the claims teach away from applicant's invention as originally filed, and consequently constitute new matter.

Claim 13 depends from claim 9, and is thus rejected as well.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1-9, 13-14, and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ahearn et al. (U.S. Patent No. 5,926,463, hereinafter "Ahearn"), in view of Anstey et al. (U.S. Patent No. 6,639,900, hereinafter "Anstey").

In considering claims 1 and 14, Ahearn discloses a method and computer program product for determining paths between a start node ("workstation") and an end node ("server") of a communication network (col. 6, lines 31-33), the network being formed of sub-networks ("subnets"), the sub-networks having connectors and segments, the start node and end node each corresponding to one of the connectors (col. 5, lines 24-27; col. 12, lines 13-21; Fig. 8), comprising:

Means for receiving, from an operator ("network supervisor"), information corresponding to the start node and end node (col. 6, lines 31-33);

Means for receiving information, from the operator, corresponding to a type of path of interest (col. 8, lines 2-8, "shortest path");

Means for receiving information corresponding to a type of connector of interest (col. 7, lines 63-67, "router"); and

Means for, in response to the information received, automatically determining a shortest path between the start node and end node based upon the type of connector of

interest (col. 6, lines 15-33; col. 7, lines 13-40, wherein the supervisor elects to view OSPF-connected nodes of a certain type, such as routers).

However, Ahearn does not disclose that the shortest path is determined irrespective of a routing or layer 2 protocol being used by a connector (i.e. the OSPF protocol discovers connector layer 3 protocols to determine the shortest path). Nonetheless, finding the shortest path between two nodes in a network, irrespective of a routing or layer 2 protocol being used by a connector, is well known, as evidenced by Anstey. In a similar art, Anstey discloses a method for determining a path between two nodes on a network, including determining hop count (col. 1, lines 22-30, "physically group network devices based on communications parameters from a selected network device including round trip time, bottleneck link speed and hop count"; col. 3, lines 42-52) wherein "all of this information may be collected without employing any private or vendor-specific information regarding the devices within the network," (col. 3, lines 53-55). Thus, given this teaching, a person having ordinary skill in the art would have readily recognized the desirability and advantages of determining the hop count and the shortest route between the nodes in the system taught by Ahearn, without employing private information of the network connectors, such as protocols used, so that the topology system can rely on information "which is readily available within any heterogeneous network" (see Anstey, col. 2, lines 4-6). Thus, it would have been obvious to discover the hop count to find the shortest path in the system taught by Ahearn irrespective of a routing or layer 2 protocol being used by a connector.

In considering claim 2, given the teaching of Ahearn and Anstey, a person having ordinary skill in the art would have readily recognized the desirability and advantages of designating the shortest path as the path with the shortest hop count, because a smaller number of hops likely signifies a shorter path. Therefore, it would have been obvious to determine the shortest path in the system taught by Ahearn and Anstey by determining the lowest hop count between the nodes.

In considering claims 3 and 16, Ahearn further discloses that each of the sub-networks has at least one level 2 connector ("switch"), each of the sub-networks being configured to intercommunicate with another of the sub-networks via a level 3 connector ("router") (Fig. 8), and wherein receiving information corresponding to a type of connector of interest comprises information corresponding to at least one of: level 2 and level 3 connectors, and level 3 connectors (col. 7, lines 63-67; col. 13, lines 40-46, wherein the user can select to view only routers ("layer 3"), only switches ("layer 2"), or a combination of the two (i.e. Fig. 8)).

In considering claim 4, Ahearn further discloses that if the type of connectors selected are level 3 connectors, determining the path between the two nodes comprises:

Identifying sub-networks associated with the start node; and determining whether the end node is associated with at least one of the identified sub-networks (col. 12, lines

13-21, wherein the system "perform[s] a Ping Spray on respective subnet to find all nodes" and "learn[s] new Routers and their associated Networks").

In considering claim 5, Ahearn further discloses that if the type of connectors are level 2 and level 3 connectors, determining a path between the start node and the end node comprises:

Identifying segments associated with the start node; and determining whether the end node is associated with at least one of the identified segments (col. 13, lines 40-59, further describing the "ping" test for layer 2 devices).

In considering claims 6 and 17, Ahearn further discloses if the end node is not associated with at least one of the identified sub-networks, recursively identifying sub-networks associated with each of the previously identified sub-networks; and determining whether the end node is associated with at least one of the sub-networks associated with each of the previously identified sub-networks (col. 12, lines 13-21, 23-49, wherein each new router and associated network is scanned and identified for purposes of determining path information).

In considering claims 7 and 18, Ahearn further discloses if the end node is not associated with at least one of the segments, recursively identifying segments associated with each of the previously identified segments; and determining whether the end node is associated with at least one of the segments associated with each of the

previously identified segments (col. 14, line 49 – col. 15, line 19, wherein each hop is traversed to determine which nodes are connected to each segment).

In considering claim 8, Ahearn further discloses that determining the path comprises:

Storing the shortest path between the start node and the end node in memory as the current shortest path; and if the type of path of interest is the shortest path, recursively determining paths between the nodes based on the type of connector of interest, such that when a newly determined path between the nodes is shorter than the current shortest path, the current shortest path is replaced with the newly determined path (col. 8, lines 2-8, 25-32; col. 12, lines 13-21, 30-50, wherein updates are made to the topology information when changes in the network occur).

In considering claim 9, Ahearn discloses a system for determining paths between a start node ("workstation") and an end node ("server") of a communication network (col. 6, lines 31-33), the network being formed of sub-networks ("subnets"), the sub-networks having connectors and segments, the start node and end node each corresponding to one of the connectors (col. 5, lines 24-27; col. 12, lines 13-21; Fig. 8), comprising:

A processor (inherent);

A discovery mechanism associated with the processor, the discovery mechanism configured to generate and store topology data specifying connectors and segments of a communication network (col. 7, lines 12-17); and

A layout mechanism associated with the processor and interfaced with the discovery mechanism, the layout mechanism configured to receive the topology data from the discovery mechanism, the layout mechanism configured to drive a display based upon the topology data (Figs. 4 & 8),

Said discovery mechanism being configured to determine a shortest probable path between a start node and an end node based upon said topology data (Figs. 4 & 8, depicting the viewable display which shows the connectivity data of the network according to topology information; col. 8, lines 1-11, "view the OSPF area topology").

However, Ahearn does not explicitly disclose that the shortest probable path is defined by a path with a lowest hop count between the start node and the end node and without reference to routing protocols of connectors located along the path. Nonetheless, finding the shortest path between two nodes in a network, irrespective of a routing or layer 2 protocol being used by a connector, is well known, as evidenced by Anstey. In a similar art, Anstey discloses a method for determining a path between two nodes on a network, including determining hop count (col. 1, lines 22-30, "physically group network devices based on communications parameters from a selected network device including round trip time, bottleneck link speed and hop count"; col. 3, lines 42-52) wherein "all of this information may be collected without employing any private or vendor-specific information regarding the devices within the network," (col. 3, lines 53-

55). Thus, given this teaching, a person having ordinary skill in the art would have readily recognized the desirability and advantages of determining the hop count and the shortest route between the nodes in the system taught by Ahearn, without employing private information of the network connectors, such as protocols used, so that the topology system can rely on information "which is readily available within any heterogeneous network" (see Anstey, col. 2, lines 4-6). Furthermore, a person having ordinary skill in the art would have readily recognized the desirability and advantages of designating the shortest path as the path with the shortest hop count, because a smaller number of hops likely signifies a shorter path. Thus, it would have been obvious to discover the hop count to find the shortest path in the system taught by Ahearn irrespective of a routing or layer 2 protocol being used by a connector.

In considering claim 13, Ahearn further discloses that the probable path mechanism receives information regarding a type of connector of interest, and determines a shortest probable path between the nodes based on this information (col. 7, line 60 – col. 8, line 10).

Response to Arguments

Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bradley Edelman whose telephone number is (703) 306-3041. The examiner can normally be reached on Monday to Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glen Burgess can be reached on (703) 305-4792. The fax phone numbers for the organization where this application or proceeding is assigned are as follows:

For all correspondences: (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

GLENTON B. BURGESS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

BE
January 9, 2004